TECHNICAL SUPPORT DOCUMENT

FOR

SALT RIVER PROJECT - CORONADO GENERATING STATION

May 20, 1999

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TECHNICAL REVIEW AND EVALUATION
OF APPLICATION FOR
SRP - CORONADO GENERATING STATION
AIR QUALITY PERMIT NO. 1000106

I. INTRODUCTION

SRP Coronado is located north of Springerville in St. Johns, Arizona. The total site occupies 3,840 acres and is located in Apache County. The plant consists of two pulverized, coal-fired, dry bottom steam electric generating units rated to produce a combined electrical output of approximately 900 megawatts. An auxiliary boiler operating on Number 2 fuel oil provides auxiliary steam during startup and flame stabilization.

A purchase order was placed for the steam generators on July 25, 1974 and construction commenced in June of 1975. The plant consists of a main power building, sulfur dioxide scrubbers and limestone handling equipment, electrostatic precipitators, process water treatment facilities, a forty-three mile railroad spur, coal and ash handling facilities, coal mixing facilities, ash disposal area, combined administration and service building, water storage reservoirs, a 330 acre evaporation pond for non-recoverable waters, mechanically induced draft cooling towers, 500-kV and 69-kV switchyards, and water supply from satellite wellfields.

Electricity is generated by the combustion of pulverized coal that heats water in boiler tubes to produce steam. The steam is then used to turn a turbine which is connected on a common shaft to a generator rotor. As the rotor in the generator is turned, it induces an electrical current in the stator windings of the generator, making electricity.

A. Company Information

Facility Name: Salt River Project - Coronado Generating Station Mailing Address: P.O. Box 52025, PAB-352, Phoenix, AZ 85072-2025 Facility Address: 6 miles northeast of St. Johns, AZ off Highway 191

B. Attainment Classification

This source is located in an attainment area for all pollutants.

II. PROCESS DESCRIPTION

Primary Operating Scenario

SRP - Coronado Generating Station operates to supply electrical power to the grid on an as-needed basis. The maximum process rates and operating hours of the significant points of emissions at Coronado are summarized in Table 1.

Table 1 Maximum Process Rates

Unit	Hours	MW/hr	MW-hr/yr
Unit 1 Boiler	8760	456	3723000
Unit 2 Boiler	8760	456	3723000
Auxiliary Boiler	8760	157 MMBtu/hr	

The Salt River Project is the sole owner and operator of the Coronado generating station. It is a self-contained operation that operates its own water, sewer, medical, security, fire, trash disposal, gasoline/diesel dispensing, and maintenance systems.

The process of generating electricity starts with the delivery of coal, which is delivered to the site by train seven days a week via a 40-mile private railroad spur that connects to the railroad main line at Navajo, Arizona. Coal deliveries are from the Pittsburgh and Midway (P&M) mines located in New Mexico and from supplemental coal deliveries received from spot market purchases. SRP is currently investigating other sources of coal.

Coal is unloaded by a rotary car dumper at a rate of 3,000 tons/hour. The rotary car dumper rotates the car around a pivot point (coupling) and dumps the coal into a hopper about 150 feet deep. Spray bars are located around the perimeter of the dump pocket and turn on automatically when material is being unloaded. Conveyor belts take the coal to be weighed and sampled. It is then transported to either a three-day active storage pile or the coal mixing system. Coal, if not immediately needed, can also be transferred to a storage pile that contains about 20 days worth. Coal is reclaimed by rotary plow feeders from the active pile or from the coal mixing system and is transported through the crusher to the coal silos. There are five baghouses to control emissions related to coal handling and wet dust suppression at transfer points. Three coal silos are provided with each boiler unit to supply 10 hour storage. The cascade coal gallery area located above the coal silos is partitioned off from the boiler-turbine areas and totally enclosed to control coal dust. From the unit coal silos, the coal enters the ball-tube mill type pulverizers (3 per unit) to be crushed to the consistency of fine powder. Each pulverizer is equipped with classifiers which prevent oversize particles of coal from being delivered to the burners.

Primary air fans transport the crushed coal to the boilers for combustion. Each steam generator is a coal-fired, oil ignited, balanced draft, single-drum natural circulation unit rated at 4719 MMBtu/hr with steam delivered at 2,400 psig and 1,000 degrees Fahrenheit. There are 12 pairs of burners in the front and rear with 24 coal burners per unit. Flue gases pass across boiler tubes and discharge out of a reinforced concrete chimney, five hundred feet above grade level. The flue gases from Units 1 and 2 are combined in one stack with separate liners.

The turbines are tandem compound reheat turbines with single opposed flow HP-IP rotors and two double flow low pressure turbines on a single shaft rotating at 3,600 revolutions per minute controlled by an electro-hydraulic control system. The turbines are designed to operate with main steam at 2,400

psig and 1000 degrees Fahrenheit and reheated to 1000 degrees Fahrenheit with steam exhausting to the condenser.

Bottom ash from the boiler is collected in a boiler bottom ash hopper, flushed from the hopper, crushed and mixed with water, and pumped as slurry to the dewatering bins. There are five baghouses to control emissions. The ash is dewatered, stored in the bins and hauled to the ash disposal area by truck. This disposal area has a capacity for about 27,000,000 cubic yards of ash, allowing approximately thirty-five years of storage at an average plant load factor of 75 percent.

Four hot-side Joy Western electrostatic precipitators (ESPs) are designed to remove 99.875 percent of the coal ash from the boiler flue gas. There are twelve separate flows going to the ESP chambers. There are seven fields in a chamber for a total of 84 fields. Each field has a six foot wide by thirty-seven foot high curtain. The fly ash collected in the precipitator hoppers is pneumatically transferred to fly ash storage bins. Fly ash is unloaded from these receiving silos into trucks or railcars and transported to the ash disposal area. A portion of the fly ash is also sold for use as a component of cement. Bottom ash and suitably moisturized fly ash is disposed of in diked areas designated for this purpose. Waste solids transported by truck from bins and silos to the disposal area are spread in layers. The layers are compacted, stabilized, and covered with soil to eliminate dusting and wind erosion.

Two four-stage weir horizontal Pullman Kellog SO_2 wet flue gas desulfurization units, or scrubbers, are provided for each boiler unit to reduce SO_2 emissions from the flue gas to the atmosphere. A limestone handling system is provided, complete with unloading, stackout and crushing facilities for limestone for use as a scrubber reagent in the SO_2 scrubbers. Baghouses are provided on the limestone storage silos for dust control. The plant is also designed to use water treatment slurry as scrubber reagent.

The primary fuel used to produce electricity is coal. Number 2 fuel oil is used in the auxiliary boiler and during startup operations and flame stabilization for the boilers.

Two mechanically induced draft cooling towers are used to remove heat from the main condenser circulating water systems. Each cooling tower is approximately 450 feet long. Chlorine is added to the circulating water intermittently to control algae and bacterial growth in the condensers and circulating water system. Cooling tower make-up water is obtained from Reservoir A which is supplied with water from the Concho and Patterson wellfields. Water from the Patterson and Concho wellfields are softened by a lime/soda ash process, then blended prior to discharge to Reservoir A.

All waste water streams are captured and the water reused until uneconomical to be reprocessed. The non-recoverable waste water is used for flushing the sulfur dioxide scrubber sludge line. Sulfur dioxide scrubber sludge is pumped to an evaporation pond located about two miles southwest of the plant via one of two cement discharge pipes.

A 500-kV switchyard is provided for distribution of plant output of electrical energy. This switchyard also provides power for the common station service auxiliaries under normal operating conditions. The 500-kV generator breakers are operated from the plant.

Alternate Operating Scenario

In addition to the combustion of coal and fuel oil, SRP Coronado is permitted to burn a limited amount of on-specification used oil each year. SRP mixes the on-specification used oil with the virgin oil in the fuel oil storage tank.

III. EMISSIONS

Typical operating parameters of the steam generating units and the auxiliary boiler are given in Table 2. Table 3 summarizes the potential to emit (PTE), allowable emissions, test results, and the emissions inventory (EI) for these units. These emission factors used to calculate the potential to emit are from AP-42 (1/95 ed.) and AIRS SCC. In most cases, the emission factors used by SRP are similar to AP-42 emission factors. However, the resulting increases (and decreases in some cases) in calculated emissions do not change the source category status, and do not trigger any new applicable requirements.

Table 2
Typical Operating Parameters

Description	Units 1 and 2 Boilers	Auxiliary Boiler
Maximum Annual Process Rate	24,063,720,000 lbs (steam)	919,800,000 lbs (steam)
Maximum Hourly Process Rate	2,747,000 lbs (steam)	105,000 lbs (steam)
Maximum Hourly Theoretical Heat Input	4719 MMBtu/hr	157.34 MM Btu/hr
Type of Fuel Used	Coal	Fuel Oil
Quantity of Fuel Used/Year	1,752,000 tons of coal	32,000 barrels of oil
Maximum Hourly Use	220 tons of coal	7,528 lb
Higher Heating Value of Fuel (max)	10,725 Btu/lb	20,900 Btu/lb
Sulfur Content	0.7%	N/A
Ash Content	25%	N/A
Density of oil (lb/gal)	N/A	6.97

The formula used to calculate uncontrolled potential emissions from units burning fuel oil is as follows:

Emissions (tpy) = Emission Factor (lb/MMBtu) x Heat Input (MMBtu/hr) x 8760 (hr/yr)/2000 (lbs/ton)

The formula used to calculate the uncontrolled emissions from units burning coal is as follows:

Emissions (tpy) = Emission Factor (lb/ton) x Max. Coal Feed Rate (ton/hour) x 8760 (hr/yr)/2000 (lbs/ton)

Potential emissions from the Coronado Generating Station (CGS) are presented in the following table. They may be used for the following purposes:

- (i) Ascertaining "major source" status of the CGS plant pursuant to CAA Sec 501 (2);
- (ii) Comparing source potential-to-emit with emission rates allowable by relevant standards; and
- (iii) Comparing source potential-to-emit with emissions inventory and test data.

This comparison serves as a summary of existing information on emissions from CGS plant. These emissions calculations are **not** meant to establish any baseline emissions levels. These emissions figures (except for the ALLOWABLE emissions) are **not** meant to be emissions limitations of any form.

Table 3
Comparison among PTE, Allowable Emissions, Test Data, and EI

Unit	Pollutant	PTE ⁽¹⁾ (tpy)	Allowable ⁽²⁾ (tpy)	Test Data ⁽³⁾ (tpy)	EI 1996 (tpy)
Unit 1 Boiler ⁽⁴⁾	PM	1,204.5	1,752.0	227.4	144.2
(Coal)	SOx	12,386.6 (5)	14,016.0	12,386.6	7,545.1
	NO _x	8,409.6 (5)	12,264.0	8,409.6	5,436.9
	VOCs	57.8	N/A	N/A	32.7
	СО	481.8	N/A	N/A	233.7
Unit 2 Boiler ⁽⁴⁾	PM	1,204.5	1,752.0	140.2	87.6
(Coal)	SOx	13,998.5 (5)	14,016.0	13,998.5	6,718.3
	NO _x	8,357.6 (5)	12,264.0	8,357.6	4,868.3
	VOCs	57.8	N/A	N/A	28.8
	СО	481.8	N/A	N/A	205.3
Auxiliary Boiler	PM	9.5	218.5	N/A	N/A
(Fuel Oil)	SOx	335.8	702.9	N/A	0
	NO _x	94.6	N/A	N/A	N/A
	VOCs	1.6	N/A	N/A	N/A

Unit	Pollutant	PTE ⁽¹⁾ (tpy)	Allowable ⁽²⁾ (tpy)	Test Data ⁽³⁾ (tpy)	EI 1996 (tpy)
	СО	23.7	N/A	N/A	N/A
Coal Handling	PM	667.3	1,270.5	N/A	N/A
Limestone Preparation	PM	28.5	275.1	N/A	N/A
Fly Ash Handling	PM	6.5	256	N/A	N/A
Cooling Tower	PM	76	670	N/A	N/A

Notes:

N/A =Not applicable

IV. COMPLIANCE HISTORY

A. Inspections

Inspections are being conducted regularly on this source to ensure compliance with the permit conditions. Table 4 summarizes some of the recent inspections that have been conducted on the source and the results of the inspections.

Table 4
Inspection Results

Inspection Date	Reason for Inspection	Results
3/16/98	Routine	In Compliance
5/27/94	Complaint	Out of Compliance*
1/23/92	Opacity Issues	In Compliance
3/5/91	Unit 2 maintenance	In Compliance

^{*}A Notice Of Violation was issued for fugitive emissions from fly ash unloading activities. SRP subsequently installed wall panels, a water spray header and a pug mill at the fly ash silo.

B. Excess Emissions

Episodes of excess emissions have been reported to the Northern Regional OAQ office.

⁽¹⁾ All emissions are reported as controlled, based on efficiencies provided in the application

⁽² The allowable emissions in tpy are obtained assuming 8760 hours of operation per year.

⁽³⁾ Tests conducted on 4/15/98 and 5/6/98

 $^{^{(4)}}$ Calculations for Unit 1 and Unit 2 boilers are based on an hourly rated heat input of 4000 MMBtu/hr

⁽⁵⁾ PTE based on test data, rather than AP-42 emission factors

C. Testing

Table 5
Test History

Date of Test	Equipment Tested	Pollutants Tested	Results
6/9/97	Unit 1	SO ₂ , NO _x , PM	Pass
5/8/97	Unit 2	SO ₂ , NO _x , PM	Pass
1997	"On-spec" used oil	As, Cd, Cr, Pb, PCBs, Flash point, # of barrels	Pass
4/23/96	Units 1 and 2	SO ₂ , NO _x , PM	Pass
1996	"On-spec" used oil	As, Cd, Cr, Pb, PCBs, Flash point, # of barrels	Pass
8/7/95	Units 1 and 2	SO ₂ , NO _x , PM	Pass
1995	"On-spec" used oil	As, Cd, Cr, Pb, PCBs, Flash point, # of barrels	Pass
8/16/94	Units 1 and 2	SO ₂ , NO _x , PM	Pass
1994	"On-spec" used oil	As, Cd, Cr, Pb, PCBs, Flash point, # of barrels	Pass
8/25/93	Units 1 and 2	SO ₂ , NO _x , PM	Pass
1993	"On-spec" used oil	As, Cd, Cr, Pb, PCBs, Flash point, # of barrels	Pass
8/24/92	Units 1 and 2	SO ₂ , NO _x , PM	Pass
12/9/92	"On-spec" used oil	As, Cd, Cr, Pb, PCBs, Flash point, # of barrels	Pass

D. Compliance Certifications

SRP has included in Section 17.0 of the permit application a certification of compliance with the applicable requirements. After the issuance of this Part 70 permit, the Permittee will be required to submit compliance certifications every six months as indicated in Section VII of Attachment "A" of the permit.

SRP has an allowance of 5,690 tons of sulfur dioxide per year for Unit 1 and 5,856 tons of sulfur dioxide per year for Unit 2 under the Acid Rain program. Although EI data shown in

Table 3 of this document indicates sulfur dioxide emissions in excess of the acid rain limit, SRP will handle this issue at the appropriate time by either buying allowances from outside, or by varying the unit operation or the scrubber operation to meet the limit.

V. APPLICABLE REGULATIONS VERIFICATION

Table 6
Applicable Regulations

Unit ID	Start-up date	Control Equipment	Applicable Regulations	Verification
Units 1 and 2	7/25/74*	ESP (2 per unit), SO ₂ scrubber	A.A.C. R18-2-903.1 NSPS - Subpart D 40 CFR 60.42(a)(2) 40 CFR 60.43(a)(1) 40 CFR 60.43(c) 40 CFR 60.44(a)(2) 40 CFR 60.44(a)(3) 40 CFR 60.44(b)	The units commenced construction after August 17, 1971 and are greater than 73 MW capacity. There are standards for PM, ${\rm SO}_2$, ${\rm NO}_x$ and Opacity
Auxiliary Boiler	7/25/74	None	A.A.C. R18-2-724.A A.A.C. R18-2-724.B A.A.C. R18-2-724.C.1 A.A.C. R18-2-724.E A.A.C. R18-2-724.G A.A.C. R18-2-724.J A.A.C. R18-2-724.K	The heat input of this unit is 157 MMBtu/hr (< 250 MMBtu/hr) and the date of construction is prior to the trigger date (6/9/89) for 40 CFR 60, Subpart Da. Hence, this unit is subject to R18-2-724. The unit is subject to an opacity standard of 15% and SOx standard of 1.0 lb/MMBtu.

*In a letter dated February 8, 1976 from Frank M. Covington, Director of Air and Hazardous Materials Division to Alfred Q. Colton of Salt River Project, the EPA agrees that due to the awarding of contracts and on-site construction beginning prior to June 1, 1975, Coronado Generating Station is exempt from PSD regulation.

VI. PREVIOUS PERMITS AND CONDITIONS

A. Previous Permits

Table 7
Previous Permits

Date Permit Issued Permit #		Application Basis
6/11/92	0365-95	Renewal of Operating Permit
1/9/86	0346-87	Renewal of Operating Permit
5/11/84	0319-85	Renewal of Operating Permit
6/2/83	0299-84	Renewal of Operating Permit
6/18/82	0269-83	Renewal of Operating Permit

Date Permit Issued	Permit #	Application Basis	
9/4/81	0243-82	Renewal of Operating Permit	
12/30/80	0201A-81	Operating Permit for Unit 2	
5/12/80	0201-81	Operating Permit for Unit 1	
12/23/74	1084	Application to Construct	

B. Previous Permit Conditions

Installation Permit #1084

The installation permit conditions are as follows:

- 1. That the generating station utilize best available technology to control air pollution excluding any intermittent curtailment techniques.
- 2. Provide as soon as available Plans & Specs which show that said facility will comply with the State Laws, Rules & Regulations in reference to Air Pollution Control.
- 3. Submit Progress Report every six months 1st Report due by June 30, 1975.

These conditions are very general and are captured in the Title V permit which has more specific requirements.

Most Recent Operating Permit #0365-95

- 1. **Emission Limits for Units 1 and 2**: Units 1 and 2 are subject to NSPS Subpart D for particulate matter, NO_x, SO₂ and Opacity. These limits are included in Attachment B, Section I.A of the Title V permit.
- 2. **Emission Limits for the auxiliary boiler and emergency diesel engines**: The auxiliary boiler is subject to A.A.C. R18-2-702 and 724 for PM, SO₂, and Opacity. These limits are included in Attachment B, Section I.B of the Title V permit.

SRP has four emergency diesel generators: two fire pumps, one fire booster pump and one emergency generator standing by in case of an all-unit trip. They are each fired up weekly to ensure adequate performance in case of an emergency. In accordance with A.A.C. R18-2-101.54.h, emergency engines are considered an insignificant activity. ADEQ is hereby revising the operating permit and removing the emission standard for emergency engines from the Title V permit.

3. **Emission Limits for burning on-specification used oil**: The permit refers to an Attachment C- "Maximum Allowable On-Specification Used Oil Emission Rates" which specifies

emission limits in pounds per hour and tons per year for arsenic, cadmium, chromium lead and PCBs. However, there are also limits on the amount of contaminants allowed in the used oil (in ppm) required by Arizona Revised Statutes 49-802, which are included in the Title V permit in Attachment B, Section VI. Because the calculations performed to obtain the emission limits obtained in Attachment C are derived from the allowable amount of contaminants in the oil, the emission limits are unnecessary. ADEQ is hereby revising the operating permit and removing Attachment C from the Title V permit.

- 4. **Excess Emissions**: Excess emissions are defined in Attachment B, Section III.E.3 of the Title V permit. Note that there is a difference between excess emissions from continuous emissions monitoring (CEM) and excess emissions from manual source tests. Excess emissions from CEM are defined as any consecutive 3 hour period during which the average exceeds the standard. Excess emissions from manual source tests are defined as any average of three one-hour tests that exceed the standard.
- 5. **Stack Sampling Facilities**: Requirements for adequate access for sampling purposes are included in Attachment A, Section XVIII.C of the Title V permit.
- 6. **Performance Tests**: Permit #0365-95 requires annual performance tests on Units 1 and 2 at least 30 days prior to the anniversary date of the permit. It also requires annual testing on the auxiliary boiler when its operation exceeds 720 hours/year. ADEQ is hereby removing the requirement in the Title V permit for an annual performance test for the auxiliary boiler because it is not a major source for any pollutant but SOx. Monitoring requirements in the Title V permit will monitor emissions for SOx. The particulate size characterization test required in Permit #0365-95 was an initial performance test and therefore is no longer required in the Title V permit.
- 7. **Continuous Emissions Monitoring (CEM)**: Continuous Emissions Monitoring requirements can be found in Attachment B, Section III.E of the Title V permit. The Part 60 requirements were streamlined with the Part 75 requirements for stringency. The only condition from Part 60 that needed to be identified specifically in addition to the Part 75 requirements was 60.7(f) which contains additional recordkeeping requirements.
- 8. **Ambient Air Monitoring**: SRP Coronado has requested the requirements for ambient air monitoring not be included in the Title V permit, citing no regulatory basis. An ambient monitor was installed at a station called Mesa Parada as a result of a modeling study performed by Dames and Moore. ADEQ installed an additional monitor at this location which SRP monitored on ADEQ's behalf. Eventually, ADEQ removed their monitor because of the redundant information. At the same time, EPA performed a modeling study and determined that a different location would better measure the ambient impact point of PM10 emissions from the fly ash disposal pile, coal pile, and coal conveyance equipment. Therefore, in SRP's 1992 permit, a requirement to install another monitor was included. This monitor was eventually placed at a site called Carrizo Draw. In 1994, SRP experienced a month of high winds and periods of excess emissions from the fly ash handling facility. SRP was issued an NOV and as a result, SRP installed wall panels, a water spray header, and a pug mill at the fly ash silo.

In a meeting with the Assessment Section of Air Quality, it was decided that the Mesa Parada monitoring station requirement could be removed from the permit. The Carrizo Draw monitoring station can be removed from the permit provided that any specific conditions used to reduce emissions at the fly ash handling facility are included as a permit condition. Therefore, the wall panels, water spray header, and pug mill are included in the Air Pollution Control Equipment section of Attachment B, Section II. As a result, ADEQ is hereby removing the requirement for ambient monitors at Mesa Parada and Carrizo Draw from the permit.

9. **Fuel Type**: The fuel type and used oil requirements are included in the Title V permit.

VII. PERIODIC MONITORING

A. Unit 1 and 2 Boilers

Opacity:

The units are subject to an opacity standard of less than 20% under the general visible emissions rule in 40 CFR 60.42(a)(2). There is an exception that allows for one six-minute period per hour of not more than 27% opacity. In accordance with 40 CFR 60.11(c), this limitation is exempt during periods of startup, shutdown, or malfunction. The source provided specific definitions for these three categories which are included in the permit conditions.

The primary fuel burned in the boilers is coal, however; at times fuel oil may be combined with the coal for flame stabilization. The Permittee is required to operate a continuous monitoring system for opacity. This monitor will be used as the periodic monitoring method. The monitoring system is required to meet the requirements of 40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specification 1. In addition to the periodic monitoring using continuous opacity monitors, the Permittee is required to perform an annual EPA Reference Method 9 test on the stacks of each unit. In accordance with Permit #0365-95, the Permittee shall maintain two sets of opacity filters, one to be used as calibration standards and one to be used as audit standards.

PM:

The units are subject to a standard of 0.10 lb/MMBtu in 40 CFR 60.42(a)(1). Compliance test results indicate that the units are able to meet the standard. Table 3 compares the PTE, allowable emissions, test data, and actual emissions for this unit. This permit requires a stack test every year plus periodically monitoring stack opacity to fulfill the periodic monitoring requirements for particulate matter emissions. Although no data is available to directly correlate opacity to particulate matter emissions, doing so would at least indicate potential problems with the air pollution control device. If corrective actions are taken to rectify the problems associated with the pollution control device, then compliance can be inferred on the basis that the source operates its pollution control equipment in a manner consistent with

good air pollution control practices. The source proposed a 24-hr rolling average opacity of 15% beyond which corrective actions need to be implemented. The opacity limit is 20% for this source. Opacity above 15% but less than 20% does not hold the source in violation of the particulate matter standard, but merely requires the source to identify and alleviate the problem by taking corrective actions to reduce the opacity to less than 20%. However, not taking corrective actions could potentially hold the source in violation of the permit terms.

SOx:

The source is subject to the sulfur dioxide standard of 0.8 lb/MMBtu heat input in A.A.C. R18-2-903.1 while burning coal. Compliance test results indicate that the units are able to meet the standard. Please see the Section on Testing in this technical remarks document. Table 3 compares the PTE, allowable emissions, test data, and actual emissions for this unit. We notice that the allowable emissions are greater than the potential to emit. The Permittee is required to operate a continuous emissions monitoring system (CEMS) for recording emissions of sulfur dioxide. The CEMS will be used as the periodic monitoring method. The monitoring system is required to meet the requirements of 40 CFR 60.13 and 40 CFR 75, Appendix A and B. In addition to the periodic monitoring using continuous emission monitors, the Permittee is required to perform an annual EPA Reference Method 6 or 6C test on the stacks of each unit.

 NO_x :

The units are subject to the nitrogen oxide standard of 0.70 lb/MMBtu heat input in 40 CFR 60.44(a)(3) when burning coal and 0.30 lb/MMBtu in 60.44(a)(2) when burning fuel oil. If burning a combination of coal and fuel oil, the units are subject to the standard calculated by the equation of 40 CFR 60.44(b). Compliance test results indicate that the units are able to meet the standard. Please see the Section on Testing in this technical remarks document. Table 3 compares the PTE, allowable emissions, test data, and actual emissions for this unit. The Permittee is required to operate a continuous emissions monitoring system (CEMS) for recording emissions of nitrogen oxides. The CEMS will be used as the periodic monitoring method. The monitoring system is required to meet the requirements of 40 CFR 60.13 and 40 CFR 75, Appendix A and B. In addition to the periodic monitoring using continuous emission monitors, the Permittee is required to perform an annual EPA Reference Method 7 or 7E test on the stacks of each unit.

Fuel:

Permittee shall be restricted to burning only coal and Number 2 fuel oil in the boilers. In addition, the permittee shall maintain a record of any change in fuel type.

B. Auxiliary Boiler

Opacity:

The boiler is subject to the opacity standard of less than 15% in A.A.C. R18-2-724.J. The boiler burns only Number 2 fuel oil. The Permittee is required to monitor and record opacity according to the following schedule:

- 1. When fuel is burned continuously for a time period > 48 hours but less than 168 hours, then one EPA Method 9 reading is required.
- 2. When fuel is burned continuously for a time period > 168 hours, then for each 168 period one EPA Method 9 reading is required.

The permittee is also required to monitor and record the number of hours fuel oil is burned continuously in the units. The time period of 48 hours was established through meetings with the stakeholders. This time period is of particular importance to the stations where there may not be a certified opacity observer to conduct observations during weekends, holidays, etc.

PM:

The units are subject to the particulate matter emissions standard in A.A.C. R18-2-724.C.1. Because fuel oil is burned in the boiler, the Permittee is required to monitor particulate matter emissions by monitoring the fuel burned in the unit. The permittee is also required to monitor the following information about the fuel found in the contractual agreement with the liquid fuel vendor:

- 1. Heating value; and
- 2. Ash content.

Although ash content by itself is not a valid measure of particulate matter emissions, monitoring this would help the agency to "ballpark" the particulate matter emissions. No engineering estimation using ash content is prescribed in the permit since it could be interpreted to incorrectly correlate particulate matter emissions to ash content only. Permittee is also required to keep on record a copy of the contractual agreement and notify the Director within 30 days of any change in the contractual agreement.

As part of this Title V renewal, ADEQ is hereby removing the annual performance test for PM because potential PM emissions from the boiler are 9.46 tpy.

SOx:

The boiler is subject to sulfur dioxide standard in A.A.C. R18-2-724.E. Because the unit burns fuel oil, the emissions standard is 1.0 lb/MMBtu. The Permittee is required to keep on record fuel supplier certification including the following information:

- 1. The name of the oil supplier;
- 2. The sulfur content and the heating value of the fuel from which the shipment came from; and

3. The method used to determine the sulfur content of the oil.

Permittee is required to make engineering calculations for SOx emissions using the information from above according to the following equation for each fuel delivery:

SO2 (lb/MMBtu) = 2.0 x [(Weight percent of sulfur/100) x Density

(lb/gal)]/[(Heating value (Btu/gal)) x (1

MMBtu/1,000,000 Btu)]

NO_x: Although there is no applicable standard for nitrogen oxides, the permittee

is required to monitor the dates and hours of operation of the auxiliary boiler.

The Permittee shall not burn high sulfur oil (>0.9% by weight) as a fuel unless it is demonstrated that low sulfur oils aren't available. In addition, only Number 2 fuel oil may be burned in the auxiliary boiler.

C. Coal Handling

Fuel:

Opacity:

The units are subject to the 40% opacity standard in A.A.C. R18-2-702. The permittee is required to make a weekly survey of the visible emissions from the entire coal plant including all the enclosed transfer points, the exposed transfer points, the storage piles, and the baghouses. The permittee is required to create a record of the date on which the survey was taken, the name of the observer, and the results of the survey. If the visible emissions do not appear to exceed the standard, the permittee would note in the record that the visible emissions were of low opacity, and it did not require a Method 9 to be performed.

If the permittee finds that on an instantaneous basis the visible emissions is in excess of 40% opacity, then he is required to make a six-minute Method 9 observation. If this observation indicates opacity in excess of 40% then the permittee is required to report it as excess emissions. In addition, the Permittee is required to adjust the process equipment or process control equipment to bring the opacity below 40%. If the permittee finds that the visible emissions is less than 40% opacity, then the permittee is required to record the source of emission, date, time, and result of the test.

PM:

The source is subject to the particulate matter standard in A.A.C. R18-2-716.B.1. The permittee is required to maintain and operate the eleven baghouses in accordance with the manufacturer's specification. Permittee is also required to hold these specifications on file. Emissions related maintenance work needs to be recorded.

The particulate matter PTE is much smaller than the process weight rate allowable from A.A.C. R18-2-716.B.1 (less than 50%). For this reason,

ADEQ is not requiring performance tests on the coal handling silos. The periodic monitoring adequately ensures compliance with the particulate matter standard through regular opacity monitoring. In addition, SRP is required to operate and maintain all baghouses in accordance with manufacturer and/or vendor specifications.

D. Limestone Handling

Opacity:

The limestone handling plant is subject to the 40% opacity standard. The permittee is required to make a weekly survey of the visible emissions from the entire limestone preparation plant including all the enclosed transfer points, the exposed transfer points, and the baghouse. The permittee is required to create a record of the date on which the survey was taken, the name of the observer, and the results of the survey. If the visible emissions do not appear to exceed the standard, the permittee would note in the record that the visible emissions were of low opacity, and it did not require a Method 9 to be performed.

If the permittee finds that on an instantaneous basis the visible emissions is in excess of 40% opacity, then he is required to make a six-minute Method 9 observation. If this observation indicates opacity in excess of 40% then the permittee is required to report it as excess emissions. In addition, the Permittee is required to adjust the process equipment or process control equipment to bring the opacity below 40%. If the permittee finds that the visible emissions is less than 40% opacity, then the permittee is required to record the source of emission, date, time, and result of the test.

PM:

The source is subject to the particulate matter standard in A.A.C. R18-2-722.B.2. The permittee is required to maintain and operate the baghouse in accordance with the manufacturer's specification. Permittee is also required to hold these specifications on file. Emissions related maintenance work needs to be recorded.

The particulate matter PTE is much smaller than the process weight rate allowable from A.A.C. R18-2-722.A.1 (less than 10%). For this reason, ADEQ is not requiring performance tests on the limestone silos. The periodic monitoring adequately ensures compliance with the particulate matter standard through regular opacity monitoring. In addition, SRP is required to operate and maintain all baghouses in accordance with manufacturer and/or vendor specifications.

E. Fly Ash Handling

Opacity:

The fly ash handling plant is subject to the 40% opacity standard. The permittee is required to make a weekly survey of the visible emissions from

the entire fly ash handling plant including all the enclosed transfer points, the exposed transfer points, the baghouses, and the mixer unloader. The permittee is required to create a record of the date on which the survey was taken, the name of the observer, and the results of the survey. If the visible emissions do not appear to exceed the standard, the permittee would note in the record that the visible emissions were of low opacity, and it did not require a Method 9 to be performed.

If the permittee finds that on an instantaneous basis the visible emissions is in excess of 40% opacity, then he is required to make a six-minute Method 9 observation. If this observation indicates opacity in excess of 40% then the permittee is required to report it as excess emissions. In addition, the Permittee is required to adjust the process equipment or process control equipment to bring the opacity below 40%. If the permittee finds that the visible emissions is less than 40% opacity, then the permittee is required to record the source of emission, date, time, and result of the test.

PM:

The source is subject to the particulate matter standard in A.A.C. R18-2-730.A.1. The permittee is required to maintain and operate the ten baghouses on the Unit 1 and 2 silos, and the Johnson March baghouse on the receiving silos in accordance with the manufacturer's specification. Permittee is also required to hold these specifications on file. Emissions related maintenance work needs to be recorded.

The particulate matter PTE is much smaller than the process weight rate allowable from A.A.C. R18-2-730.A.1 (less than 3%). For this reason, ADEQ is not requiring performance tests on the fly ash silos. The periodic monitoring adequately ensures compliance with the particulate matter standard through regular opacity monitoring. In addition, SRP is required to operate and maintain all baghouses in accordance with manufacturer and/or vendor specifications.

F. Cooling Towers 1 and 2

SRP does not use Chromium-6 in the cooling towers at the Coronado Generating Station. Therefore, they are not subject to MACT for cooling towers under 40 CFR Part 63, Subpart Q.

Opacity: The cooling tower is subject to the opacity standard of < 40% under the

general visible emissions rule under A.A.C. R18-2-702.B.

PM: The units are also subject to particulate matter emissions standard under A.A.C. R18-2-730.A.1.

The particulate matter PTE is much smaller than the process weight rate

allowable from A.A.C. R18-2-730.A.1 (less than 10%). For this reason, along with the physical constraints making particulate matter testing infeasible, ADEQ is not requiring performance tests on the cooling towers.

G. Non-point Sources

The standards in Article 6 are applicable requirements for non-point sources. The following sources will be monitored:

- 1. Driveways, parking areas, vacant lots
- 2. Unused open areas
- 3. Open areas (Used, altered, repaired, etc.)
- 4. Construction of roadways
- 5. Material transportation
- 6. Material handling
- 7. Storage piles
- 8. Stacking and reclaiming machinery at storage piles

All of these areas must comply with the opacity limitation of 40%. The control measures for most of these activities include dust suppressants and/or wetting agents and reasonable precautions. To conduct open burning, Permittee must obtain a permit from ADEQ, or the local officer in charge of issuing burn permits.

Monitoring and recordkeeping requirements for the nonpoint sources include a record of the date and type of activity performed, and the type of controls used. Also, monitoring requirements for the applicable open burning rule may be satisfied by keeping all open burn permits on file.

H. Other Periodic Activities

Abrasive Sand Blasting

SRP has indicated in the permit application that abrasive sand blasting activities are conducted on-site. The applicable requirements are R18-2-726 and R18-2-702 (B) and are included in the permit. Monitoring requirements include:

- 1. Date project was conducted;
- 2. Duration of project;
- 3. Type of control measures employed.

Spray Painting

SRP has indicated in the permit application that spray painting activities are conducted onsite. The applicable requirements are R18-2-727 and R18-2-702(B) and are included in the permit. R18-2-727(A) and R18-2-727(B) are included in the approved State Implementation Plan (SIP). R18-2-727(C) and R18-2-727(D) are also a part of the approved SIP. They are present in the definitions section of the SIP as R9-3-101.117. EPA approved SIP provision R9-3-527.C is not present in the amended rule. However, R9-3-527.C is an applicable requirement, and is federally enforceable until the current State SIP is approved by the EPA. Monitoring requirements include:

- 1. Date project was conducted;
- 2. Duration of project;
- 3. Type of control measures employed;
- 4. Material Safety Data Sheets for all paints and solvents used in the project.

Mobile Sources

The Permittee has been required to keep a record of all emissions related maintenance activities performed on Permittee's mobile sources stationed at the facility as per manufacturer's specifications for the purposes of monitoring and recordkeeping

Asbestos Demolition/Renovation

The Permittee has been required to keep a record of all required paperwork on file for the purposes of monitoring and recordkeeping. The required paperwork includes "NESHAP Notification for Renovation and Demolition Activities" form and all supporting documents.

Nonvehicle Air Conditioner Maintenance and/or Services

The Permittee has been required to keep a record of all paperwork required by the applicable requirements of 40 CFR 82 - Subpart F on file for the purposes of monitoring and recordkeeping.

I. Used Fuel Oil

All of the previous permit conditions regarding used fuel oil have been incorporated into this Title V permit. The Permittee is required to burn only on-site generated on-specification used oil with contaminants less than the following:

Arsenic 5 ppm
Cadmium 2 ppm
Chromium 10 ppm
Lead 100 ppm
PCBs 2 ppm

In addition, the flash point of the used oil shall not fall below 100 degrees Fahrenheit. The amount of used oil shall not exceed 350 barrels annually. This requirement carried over from a prior permit condition.

Recordkeeping and reporting requirements include an annual report which contains an inventory of the fuel oil used throughout the year. Testing requirements include a test for

chlorinated solvents prior to burning and an annual test for arsenic, cadmium, chromium, and lead.

VIII. TESTING REQUIREMENTS

A. Unit 1 and Unit 2 Boilers

SRP is required to perform annual performance tests for opacity, particulate matter, SO2 and NO_x in accordance with 40 CFR Part 60, Subpart D. Installed CEMS will be used as the periodic monitoring method.

B. Used Fuel Oil

Permittee shall conduct an annual test for chlorinated solvents, arsenic, cadmium, chromium, and lead prior to burning.

IX. INSIGNIFICANT ACTIVITIES

The following activities were proposed to be insignificant in the permit application (activities in redline format are being evaluated for significance):

S. No.	Activity	Determination	Comment
1	5,000 gallon sulfuric acid storage tank (93%) (4)	Yes	No applicable requirement
2	7,000 gallon sodium hydroxide storage tank (50%)	Yes	No applicable requirement
3	5,000 gallon copper corrosion inhibitor storage tank (50% water solution of sodium tolytriazole)	Yes	No applicable requirement
4	3,000 gallon coagulant storage tanks (aqueous sodium aluminate solution) (2)	Yes	No applicable requirement
5	5,000 gallon antiscalant/dispersant storage tank (aqueous solution of sodium phosphonate and polyacrylates)	Yes	No applicable requirement
6	2,000 lb pH control/hardness conditioning storage tank (phosphates) and 400 gallon morpholine	Yes	No applicable requirement
7	400 gallon oxygen scavenger storage tank (aqueous modified amino compound)	Yes	No applicable requirement
8	1250 gallon corrosion inhibitor (aqueous solution of borate, nitrate and nitrite)	Yes	No applicable requirement
9	15,000 gallon vehicle diesel fuel storage tank (2)	Yes	A.A.C. R18-2-101.54.c

S. No.	Activity	Determination	Comment
10	1,000,000 gallon fuel oil storage tank (#2 diesel fuel)	Yes	No applicable requirement
11	10,000 gallon unleaded gasoline storage tank (2)	Yes	A.A.C. R18-2-101.54.b
12	10 nitrogen cylinders at 7500 scf each	Yes	A.A.C. R18-2-101.54.i
13	15 hydrogen cylinders at 7500 scf each	Yes	A.A.C. R18-2-101.54.i
14	12 chlorine cylinders at 1 ton each	No	SRP is subject to 40 CFR Part 68 for chlorine, which has a threshold of 25 lbs.
15	Two 16,000 gallon turbine lube oil storage tanks	Yes	No applicable requirement
16	550 gallon hydraulic oil HD 100 storage tank (2)	Yes	No applicable requirement
17	550 gallon AW machine oil 150 storage tank (2)	Yes	No applicable requirement
18	550 gallon AW machine oil 68 storage tank (2)	Yes	No applicable requirement
19	550 gallon AW machine oil 32 storage tank (2)	Yes	No applicable requirement
20	550 gallon fyrquel hydraulic fluid storage tank (2)	Yes	No applicable requirement
21	550 gallon ethylene glycol storage tank (2)	Yes	No applicable requirement
22	550 gallon almasol gear lube 90 weight storage tank (2)	Yes	No applicable requirement
23	mineral oil storage tank	Yes	No applicable requirement
24	lube oil vapor extractors	No	There is an applicable requirement (A.A.C. R18-2-730)
25	generator vapor extractors	No	There is an applicable requirement (A.A.C. R18-2-730)
26	boiler feed pump	Yes	No applicable requirement
27	50,000 gallon bearing cooling water (2)	Yes	No applicable requirement
28	15,000 gallon brine sump	Yes	No applicable requirement
29	800 hp emergency diesel engine	Yes	A.A.C. 101.54.h

S. No.	Activity	Determination	Comment
30	miscellaneous steam vents	Yes	No applicable requirement
31	paint building with controls	No	There is an applicable requirement (A.A.C. R18-2-727)
32	sandblasting/welding/metal fabrication with controls	No	There is an applicable requirement (A.A.C. R18-2-726)
33	permitted asbestos landfill	No	There is an applicable requirement (40 CFR 61 Subpart M)
34	miscellaneous rotating machinery less than 325 aggregate bhp	No	There is an applicable requirement (A.A.C. R18-2-719). Per conversation with Jim Wood of SRP on May 27, 1998, there is no rotating machinery on site other than the emergency diesel engines, therefore, there is no need for 719 requirements to be included in the permit.
35	IC engine compressors	No	
36	Quality control/assurance laboratory	Yes	A.A.C. R18-2-101.54.i
37	Drum storage and handling	Yes	No applicable requirement
38	Boiler feedwater water treatment and storage	Yes	No applicable requirement
39	Process water treatment and storage	Yes	No applicable requirement
40	On-site domestic wastewater and sewage treatment (10,000 gal/day)	Yes	No applicable requirement
41	Housekeeping activities and associated cleaning products	Yes	No applicable requirement
42	Heating ventilation & air conditioning equipment not designed to remove air contaminants	Yes	No applicable requirement
43	General office activities	Yes	No applicable requirement
44	Restroom facilities and associated cleanup operations and vents	Yes	No applicable requirement

S. No.	Activity	Determination	Comment
45	Normal consumer use of consumer products including hazardous substances as defined in 15 U.S.C. 1261 et. seq.	No	The hazardous substances defined are too general to be considered insignificant. The source may request for specific substances to be evaluated for insignificance
46	Vacuum cleaning systems used exclusively for commercial/industrial purposes	Yes	No applicable requirement
47	Landscaping and site housekeeping activities	Yes	A.A.C. R18-2-101.54.a
48	Fugitive emissions from landscaping activities	Yes	A.A.C. R18-2-101.54.a
49	Use of pesticides, fumigants, and herbicides	Yes	No applicable requirement
50	Groundskeeping activities and products	Yes	A.A.C. R18-2-101.54.a
51	Firefighting activities and training conducted at the source in preparation for fighting fires	No	There is an applicable requirement (A.A.C. R18-2-602)
52	Open burning activities	No	There is an applicable requirement (A.A.C. R18-2-602)
53	Flares used to indicate danger	Yes	No applicable requirement
54	Activities associated with the construction, repair, or maintenance of roads or other paved or open areas, including operation of street sweepers, vacuum trucks, spray trucks or other vehicles related to the control of fugitive emissions of such roads or other areas	No	There is an applicable requirement (A.A.C. R18-2-604)
55	Road and lot paving operations	No	There is an applicable requirement (A.A.C. R18-2-605)
56	Cindering of streets and roads to abate traffic hazards caused by ice and snow	Yes	No applicable requirement
57	Street and parking lot striping	No	There is an applicable requirement (A.A.C. R18-2-604)

S. No.	Activity	Determination	Comment
58	Fugitive dust emissions from the operation of passenger vans, automobiles, station wagons, pickup trucks, or vans at a stationary source	No	There is an applicable requirement (A.A.C. R18-2-604)
59	Equipment using water, water and soap or detergent, or a suspension of abrasives in water for the purposes of cleaning or finishing	Yes	No applicable requirement
60	Construction and disturbance of surface areas for purposes of land development (must still comply with AAC title 18, Chapter 2, Article 6 and other applicable requirements	No	There is an applicable requirement (A.A.C. R18-2-604)
61	Activities at a source associated with the maintenance, repair, or dismantlement of an emissions unit or other equipment installed at the source, including preparation for maintenance, repair or dismantlement and preparation for subsequent startup, including preparation of a shutdown vessel for entry, replacement of insulation, welding, cutting, and steam purging of a vessel prior to startup; also includes maintenance, repair or dismantlement of building, utility lines, pipelines, wells, excavation, earthworks, and other structures that do not constitute and emissions unit (must comply with all applicable requirements)	No	There is an applicable requirement (A.A.C. R18-2-730)
62	Containers, reservoirs or tanks used exclusively in dipping operations to coat objects with oils, waxes, or greases	No	There is an applicable requirement (A.A.C. R18-2-730)
63	Activities directly used in the diagnosis and treatment of injury or other medical condition	Yes	No applicable requirement
64	Manually operated equipment used for buffing, polishing, carving, cutting, drilling, machining, routing, sanding, sawing, surface grinding, or turning, and associated venting	Yes	A.A.C. R18-2-101.54.f

S. No.	Activity	Determination	Comment
65	Various emissions points such as: sampling points, analyzers, process instrumentation, individual burners and sootblowers (emissions calculated as aggregate from generating units); transportable test equipment; individual flanges, valves, pump seals, pressure relief valves, and other individual components with the potential for leaks (must comply with applicable requirements).	No	There is an applicable requirement (A.A.C. R18-2-730)
66	Brazing, soldering, or welding operations	Yes	No applicable requirement
67	Battery recharging areas	Yes	No applicable requirement
68	Aerosol can usage	Yes	No applicable requirement
69	Plastic pipe welding	Yes	No applicable requirement
70	Acetylene, butane and propane torches and their use	Yes	No applicable requirement as long as remain under 10,000 lb as stated in 40 CFR 68.130
71	Architectural painting and associated surface preparation for maintenance purposes (must comply with applicable requirements)	No	There is an applicable requirement (A.A.C. R18-2-727)
72	Steam vents, condenser vents, and boiler blowdown	Yes	No applicable requirement
73	Equipment used exclusively for portable steam cleaning	Yes	No applicable requirement
74	Blast cleaning equipment using a suspension of abrasives in water and any exhaust system or collector serving them exclusively	Yes	No applicable requirement
75	Surface impoundments such as ash ponds, cooling ponds, evaporation ponds, settling ponds, and storm water ponds	No	There is an applicable requirement (A.A.C. R18-2-730)
76	Pump/motor oil reservoirs	Yes	No applicable requirement
77	Transformer vents	Yes	No applicable requirement
78	Lubricating system reservoirs	Yes	No applicable requirement
79	Hydraulic system reservoirs	Yes	No applicable requirement

S. No.	Activity	Determination	Comment
80	Adhesive use not related to production	Yes	No applicable requirement
81	Caulking operations not part of production process	Yes	No applicable requirement
82	Electric motors	Yes	No applicable requirement
83	High voltage induced corona	Yes	No applicable requirement
84	Production of hot/chilled water for on-site use not related to industrial process	No	There is an applicable requirement (A.A.C. R18-2-724)
85	Safety devices such as fire extinguishers	Yes	No applicable requirement
86	Soil gas sampling	Yes	No applicable requirement
87	Filter draining	Yes	No applicable requirement
88	General vehicle maintenance and servicing activities	Yes	No applicable requirement with the exception being any activity contained in 40 CFR 82
89	Station transformers	Yes	No applicable requirement
90	Circuit breakers	Yes	No applicable requirement
91	Storage cabinets for flammable products	Yes	No applicable requirement
92	Fugitive emissions from any landfill operations (if landfill not otherwise subject to federal applicable requirement)	No	There is an applicable requirement (A.A.C. R18-2-731)